WATERWATCH
Corangamite
Communities Caring For Catchments

CORANGAMITE WATERWATCH PROGRAM

WATER QUALITY REPORT - 2006

Estuaries and Waterways of the Otway Coast

Erskine River,

Monitors: Juliet English and Craig McGee

Corangamite Waterwatch proudly supported by:

Barwon Water

CORANGAMITE CMA

action Salinity & Water AUSTRALIA

Introduction

Waterwatch is a national community water monitoring program with an environmental education and awareness focus. It brings together schools and community groups, Landcare groups, landowners, councils and water authorities to test the quality of their local stream or water body so that action can be taken to maintain or improve the water quality.

The Corangamite Region Waterwatch program is hosted by Barwon Water in partnership with Corangamite Catchment Management Authority and is sponsored by the National Action Plan.

These notes have been compiled by the Corangamite Waterwatch team and offer some reasons for the variations in the results. The problems are complex and the ideas presented here are designed to encourage discussion about the local waterways and the water quality issues that have been identified over the past 12 months. Waterwatch encourages groups to not only look at their own environment, but their whole waterway and catchment to find opportunities to improve their waterways.

It is important to realise that results can also vary with a number of factors including:

- the individual
- the expertise of the monitoring group
- time of day
- site of testing
- sampling method (eg. depth at which sample is taken)
- amount of recent rainfall
- seasonal variation
- accuracy of monitoring equipment

If you have any questions regarding the contents of this report, or would like further information about the Corangamite Waterwatch Program, please contact:

Bernadette Van Noordenburg
Coordinator
Corangamite Waterwatch
C/- Barwon Water
40-44 Lonsdale Street
South Geelong, Vic. 3220

Phone: (03) 5226-9273
Fax: (03) 5229-3495

Deirdre Murphy
Science Coordinator
Corangamite Waterwatch
C/- Barwon Water
40-44 Lonsdale Street
South Geelong, Vic. 3220

Phone: (03) 5226-9268
Fax: (03) 5229-3495

Water Qualtiy Tests

The Corangamite Waterwatch Program test for a number of different parameters that indicate various physical and chemical properties and thus reflect the water quality in the rivers and streams. The following table lists the parameters tested and what they indicate.

Test	Unit	What Does This Test Measure?
Dissolved Oxygen	% sat	Dissolved oxygen measures the amount of oxygen gas dissolved into the water. The level of DO is affected by water temperature; higher temperatures result in lower amounts of dissolved oxygen.
pH	pH units	pH is a measure of the acidity or alkalinity of the water. pH levels above 7 are alkaline whilst pH levels below 7 are acidic. A pH of 7 is said to be neutral and in the middle of the pH range.
Temperature	^{o}C	Temperature is an important parameter to measure as fluctuations in water temperature can affect other parameters such as DO.
Conductivity	EC	Conductivity is a measure of the amount of dissolved salts in the water (salinity).
Turbidity	FAU	Turbidity is a measure of the clarity of water. The more suspended solids (eg. fine particles) the higher the turbidity.
Reactive Phosphate	mg P/L	Levels of phosphates indicate the nutrient status and organic enrichment of the water.

All of the physical and chemical parameters that are tested indicate a separate characteristic of the quality or health of the water in the rivers and streams. The following table lists the parameters that are tested within the Corangamite Waterwatch Program and gives a short description of why we test for them.

Test	Why do we test for this parameter?
Dissolved Oxygen	Dissolved oxygen varies according to the temperature of the water along with other factors including surface area (eg. if we have a high surface area to volume ratio, DO levels will generally be high). Very low levels of DO in the water will reduce the numbers of sensitive species in the ecosystem.
pH	pH levels above or below normal levels for a waterway may affect sensitive species. Extremely high or low levels may limit even the most hardy of species.
Temperature	Temperature has the same effect on aquatic ecosystems as pH. Too high or too low a temperature or severe temperature fluctuations may cause the death of even the most hardy of species. Temperature extremes may affect the way that larvae grow and result in species death over a longer period.
Conductivity	As with temperature and pH, the salinity of water can affect the way species within the ecosystem survive. Sensitive species die and reproduction of species may be affected if the water conductivity rises beyond normal ranges.
Turbidity	The turbidity of water can have a large effect on an ecosystem because the more cloudy the water, the less the sunlight penetrates it. This reduction in sunlight then reduces the ability of aquatic plants to photosynthesize and therefore their ability to make food for themselves and animals that feed on them. Reduction in photosynthesis also affects the amount of oxygen that is produced by plants in the water. This in turn leads to less oxygen being available for animals and plants to use.
Reactive Phosphate	If phosphate levels rise significantly above natural levels, they can lead to algal blooms, which in turn increase turbidity, pH and produce toxins that make the water unsafe to use.

Interpreting Data Using Condition Ratings - ANZECC and State Environment Protection Policy

ANZECC

All data reported in this report is compared with condition ratings based on Water Quality Guidelines for lowland rivers, ANZECC Guidelines, 1992. This method of assessment is widely used for snapshots of data eg when only limited data points are available for the sampling site.

ANZECC Water Quality Index (1992)

Parameter	Measurement	Ratings & Values				
		Excellent (4)	**Good (3)**	**Fair (2)**	**Poor (1)**	**Degraded (0)**
Dissolved Oxygen (DO)	% Saturation	81 – 110	71 – 80 111 – 130	51 – 70 131 – 150	41 – 50 151 – 160	< 40 > 161
pH	Units	6.5 – 7.5	6.0 – 6.4 or 7.6 – 8.0	5.5 – 5.9 or 8.1 – 8.5	5.0 – 5.4 or 8.6 – 9.0	<5.0 or >9.1
Reactive Phosphorus	mg P/L	< 0.01	0.011 – 0.025	0.026 – 0.05	0.051 – 0.1	> 0.1
Salinity (EC)	Electrical Conductivity (EC)	0 – 400	401 – 800	801 – 2,000	2,001 – 5,000	> 5,000
Turbidity (T)	FAU	< 10	10 – 20	20 – 30	30 – 50	> 50

The value of the rating can be added together to give a physico-chemical test water quality rating for the condition of the waterway. This rating is reported in the discussion section of the report. Similar condition scores can be performed on habitat and macroinvertebrate surveys (where the data is available) to give an overall waterway condition rating.

State Environment Protection Policy - SEPP (WoV)

Water quality can also be interpreted using the State Environment Protection Policy (Waters of Victoria) commonly referred to as SEPP (WoV)[1]. SEPP guidelines were developed by the EPA to provide a legal approach to environmental protection. Environment quality objectives ie the goal posts, are water quality or biological indicators set to protect the water environment. The SEPP describes the

(1) uses and values of the water environment (human consumption, irrigation etc) of the water environments and
(2) sets goal posts to know when they are protected and
(3) guidance on how to maintain them through an "attainment program".

The uses and values of the water environment are also called the beneficial uses ie those uses that depend on clean water eg human consumption or irrigation. The goal posts are the environment quality objectives that protect the water environment eg water quality or biological indicators.

[1] Policy Impact Statement State Environment Protection Policy (Waters of Victoria) Our Water, Our Future!, EPA, 2003. Publication available on internet http://www.epa.vic.gov.au/water/epa/wov.asp

SEPP was developed in conjunction with the Victorian River Health Strategy and is reviewed every 10 years. There are different types of water environment that SEPP defines as segments with different water quality objectives

1. Aquatic reserves of high conservation value with a water quality objective of "no variation from background condition"
2. Wetlands and Lakes (area that are wet on a regular or semi regular basis) that do not have a water quality objective yet
3. Rivers and Streams that range from forested areas and those that are cleared. The Corangamite region will have different water quality objectives for these different environments. The table on the following page has the description of rivers and streams and their associated water quality objectives used as the "goal posts" in the Corangamite Water Quality Reports.
4. Marine and estuarine water environments are diverse and environmental quality objectives are generally not set however Port Phillip Bay has specific protection and open coasts require a high level of ecosystem protection.

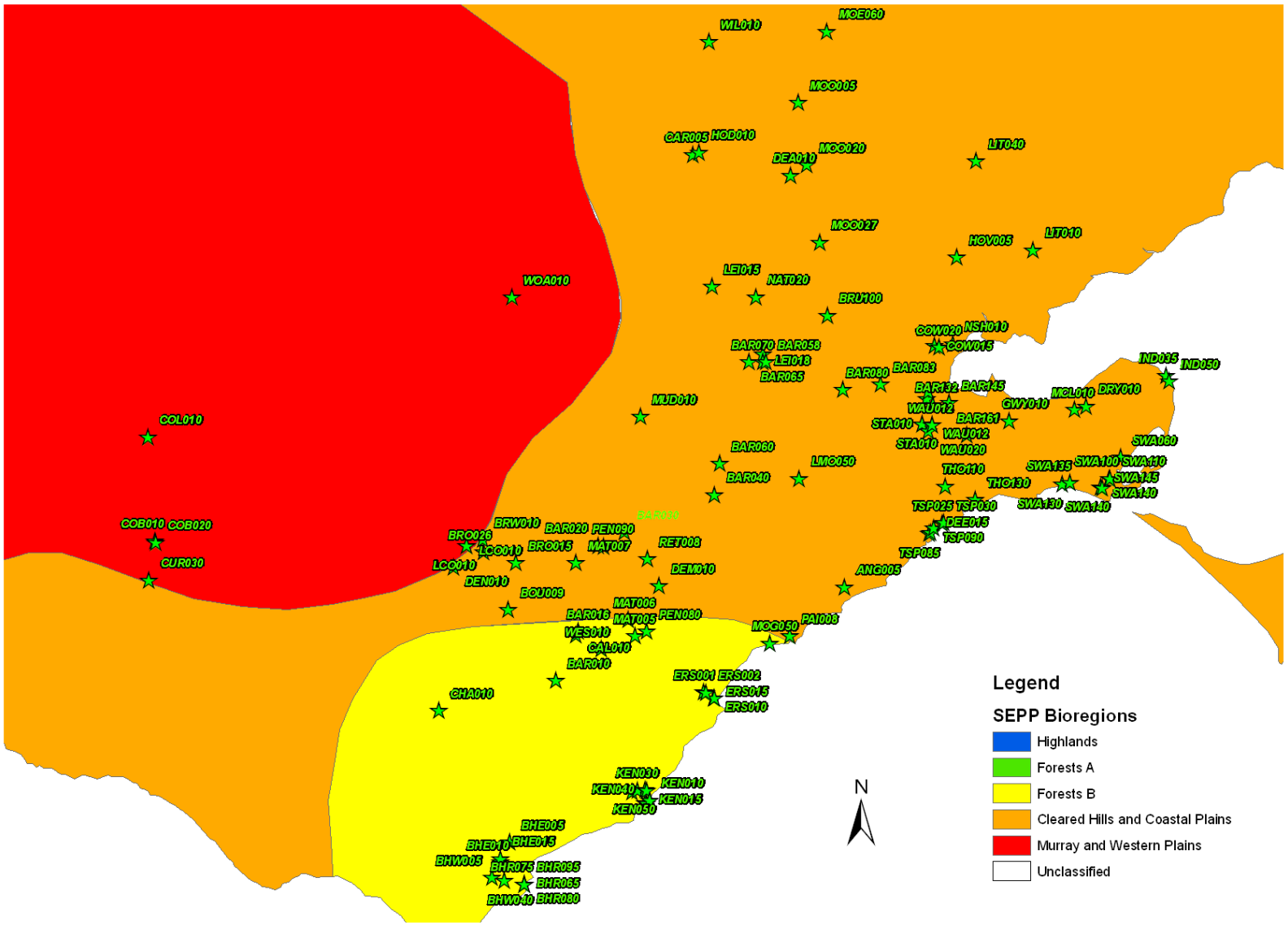
SEPP analysis can only be done where there are at least 11 data points for the year. SEPP analysis has been performed on all the river and stream data collected by Waterwatch monitors if there is enough data points collected. If insufficient data is able to be collected because of lack of water, this observation is mentioned in the results presentation.

The data is analysed statistically to calculate the 25^{th} and 75^{th} percentile ie the 75^{th} percentile is the value of the parameter (eg electrical conductivity) below which 75% of data points may be found. If the site data falls outside the required percentile, the water quality has not met the objective set to protect the uses and the values of the area. The result is that the objective is either met or not met.

SEPP Environmental Quality Objectives for the Corangamite region.

Segment	Indicator					
	Dissolved Oxygen (%sat)		Turbidity (NTU)	Electrical Conductivity (µS/cm)	pH units	
	25th percentile	maximum	75th percentile	75th percentile	25th percentile	75th percentile
Forested Areas – B						
Otway Ranges	90	110	5	500	6.4	7.7
All other areas	90	110	5	100	6.4	7.7
Cleared Hills and Coastal Plains						
Lowlands of the Barwon and Moorabool catchments	85	110	10	1500	6.5	8.3
Uplands of the Moorabool catchments	85	110	10	500	6.5	8.3
Murray and Western Plains						
Corangamite Basins	85	110	10	1500	6.5	8.3

The sites monitored in the Corangamite Waterwatch program fall into one of the segments Forests B, Cleared Hills and Coastal Plains, and Murray and Western Plains. Sites in the region have been mapped and are shown on the next page (map generated by Clare Marsh, Freshwater Services, EPA Victoria). The uplands of the Moorabool River are defined as having an altitude of more than 200m.



This map of the Corangamite region shows the location of monitoring sites in relation to SEPP bioregions

Waterwatch Monitoring Plan

Monitoring Purposes
- To establish and regularly record stream health and river flow
- Overall concern for water quality and land use issues

Information Users
- Lornecare
- Corangamite WaterWatch
- Surf Coast Shire

Information Uses
- Useful data that can be used when approaching shire or other group for funding
- Identify trouble spots and how they can be managed

Parameters Monitored
- Macro-invertebrate surveys may be undertaken during spring or autumn
- Habitat Survey conducted once a year
- Physico-chemical parameters- pH, EC, Turbidity, D.O, Temperature, Reactive phosphorus

Monitoring Times
- Monthly - around end of month

Group Involvement
- Lornecare

Data Management and Presentation
- Forwarded to Corangamite Waterwatch
- Waterwatch Database
- Annual Water Quality Report

Data Credibility
- Regular calibration of meters
- Participate in region QA/QC program
- Attend local Waterwatch training sessions.

Facilitator
- Bernadette Van Noordenburg (Corangamite Region Waterwatch Program) Ph.: 52269273

Site Description

Site Description – Erskine River

Lorne is a town on the Great Ocean Road situated at the mouth of Erskine River where the Otway Ranges meets the Southern Ocean. From its inception as an early resort town in the late 1800s, Lorne has become a thriving tourist town, containing a permanent population of about 3,000. During the summer holiday period, the population increases by tens of thousands.

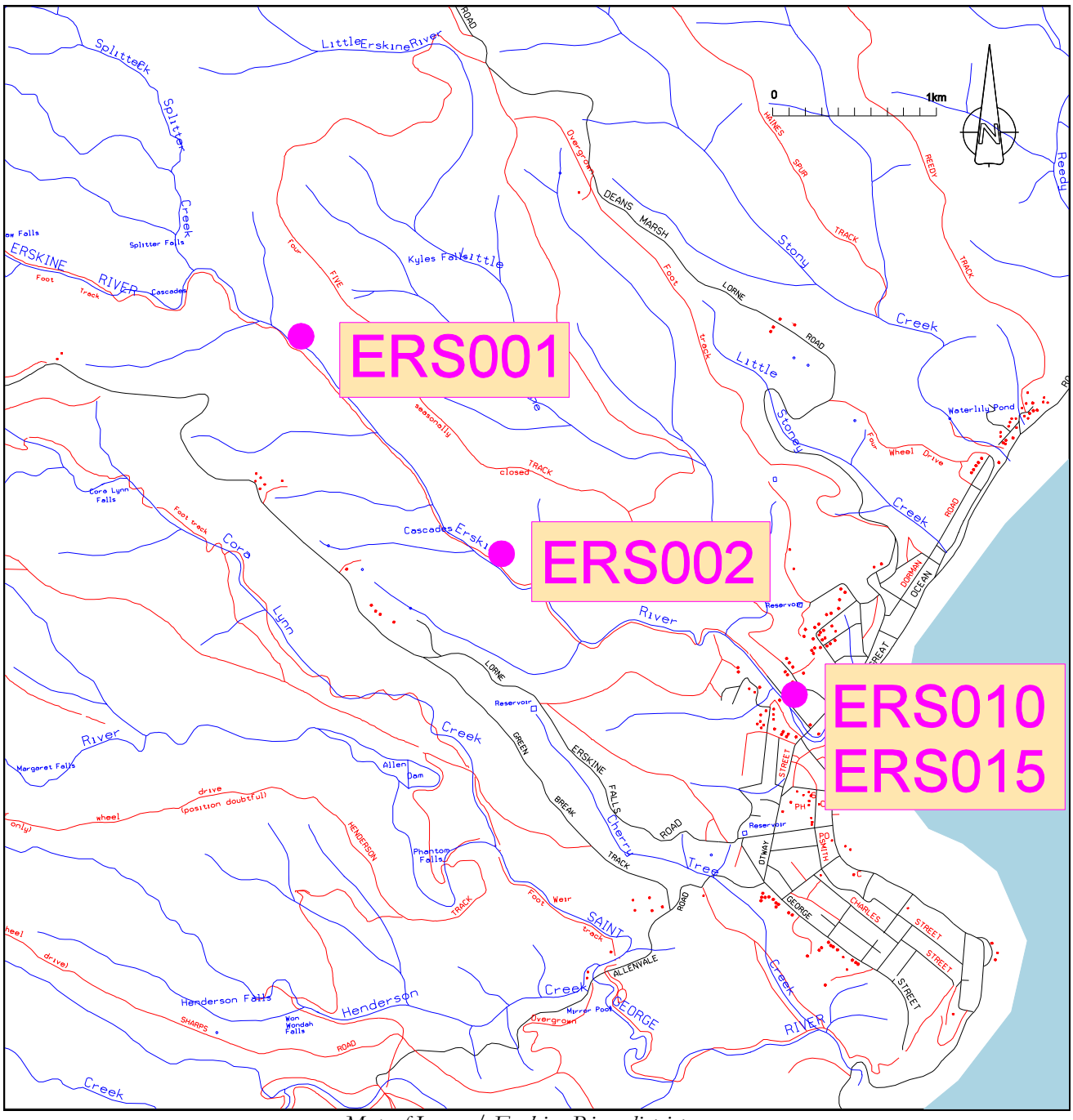
Lorne is surrounded by the Otway Ranges and the Angahook-Lorne State Forest consisting temperate rainforest, blue-gum forests, fern gullies, cliffs and waterfalls. It was these characteristics that over 100 years ago earned Lorne the title of area of Special Significance and Natural Beauty, the first in Victoria

The Erskine River catchment is bordered by the Benwerrin-Mt. Sabine (west), Erskine Falls Road (south), Ocean Road (east) and just south of Deans Marsh-Lorne Road (north). A number of small creeks and tributaries flow into the Erskine River, including Splitter Creek and Lemonade Creek.

Within the catchment there is an old quarry and old tip site, along with the existing tip site near Erskine Falls Road. The monitoring sites ERS001 and ERS002 are located above and below the drainage catchment of the existing tip. The upper catchment of the Erskine River is primarily privately owned with many areas extensively grazed. The lower catchment is urbanised with both residential and commercial land use.

Four sites are monitored along the Erskine River on a monthly basis.

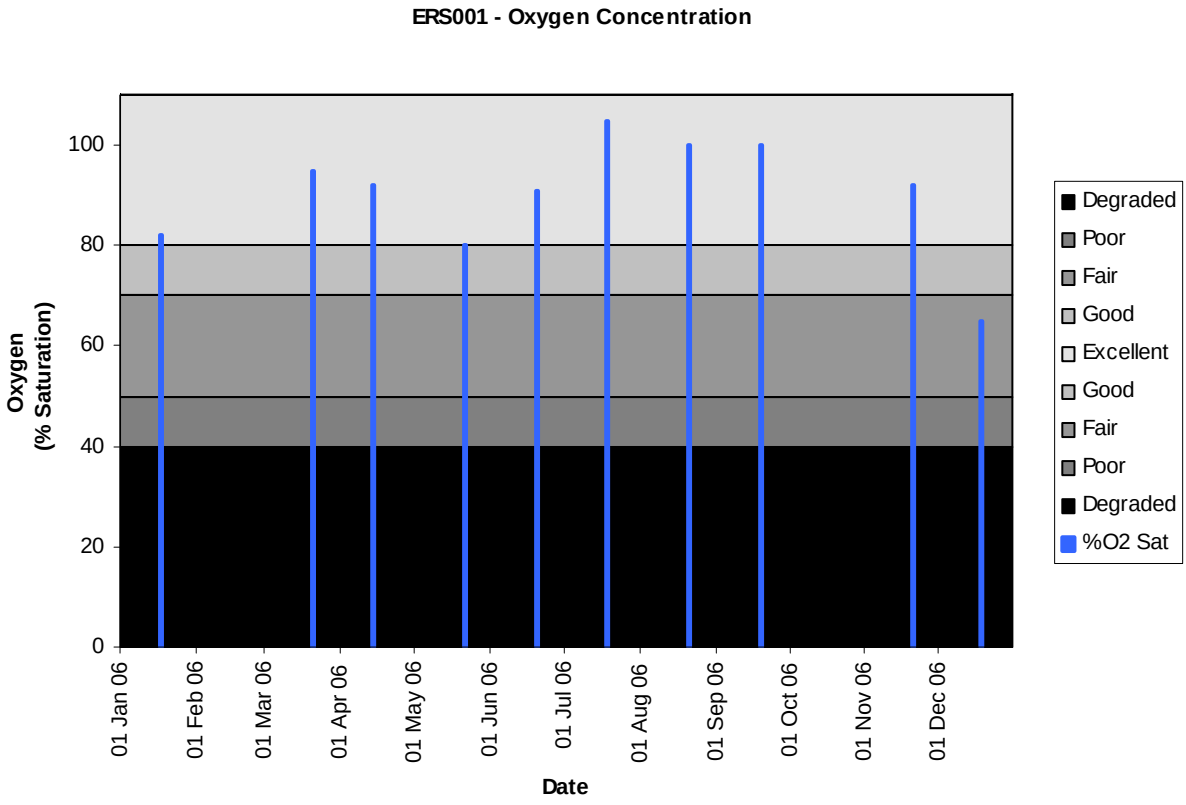
- ERS001 Erskine River @ Emily's Rest
- ERS002 Erskine River @ Camel's Log
- ERS010 Erskine River @ Caravan Park
- ERS015 Erskine River @ Swing Bridge

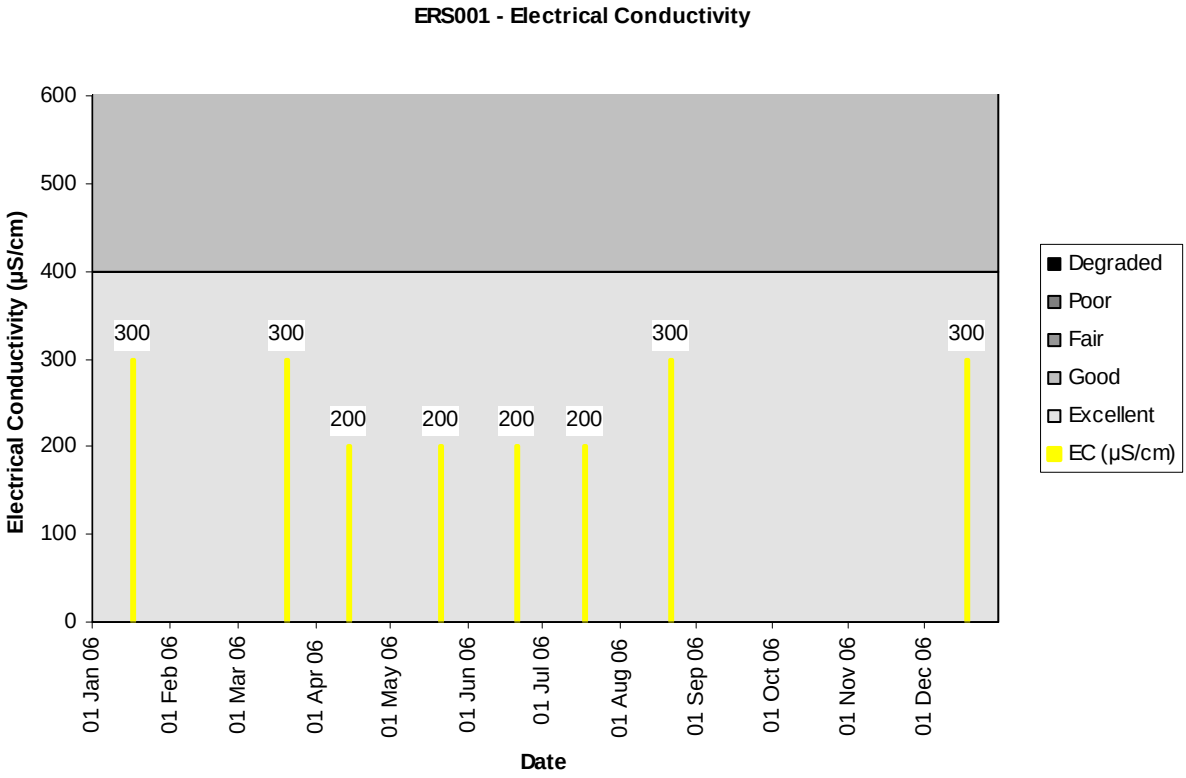


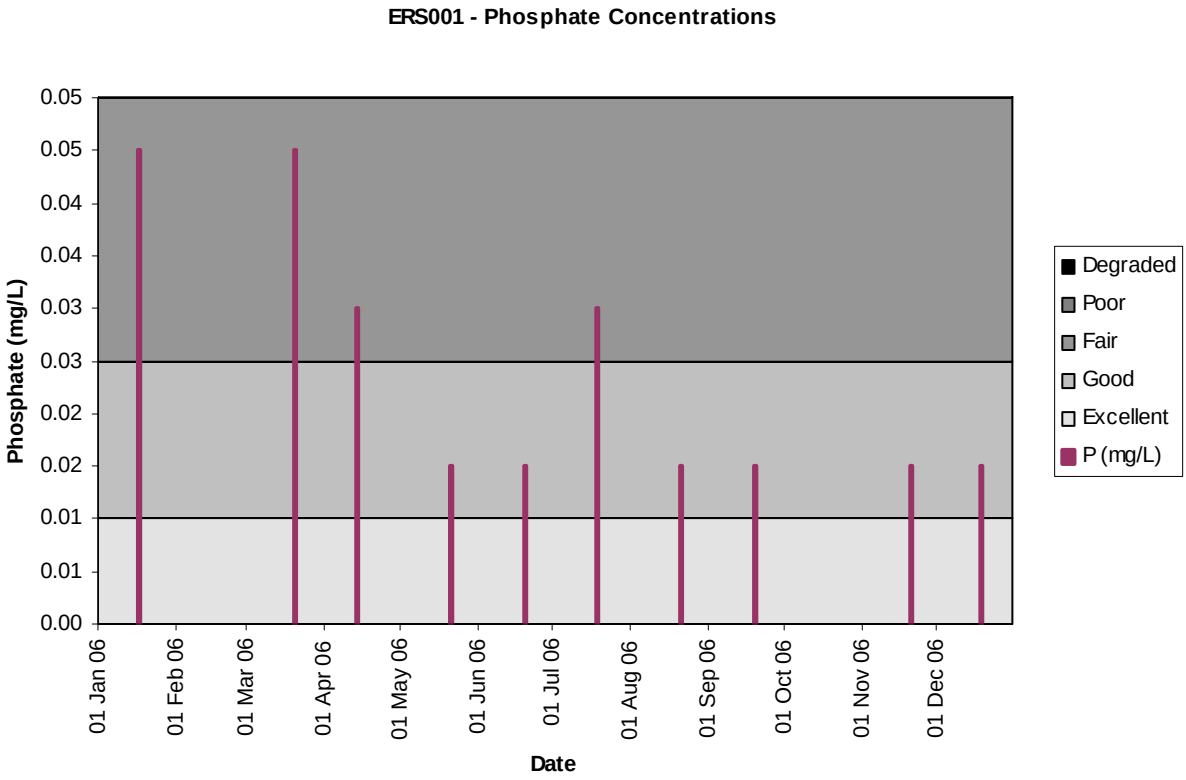
Map of Lorne / Erskine River district

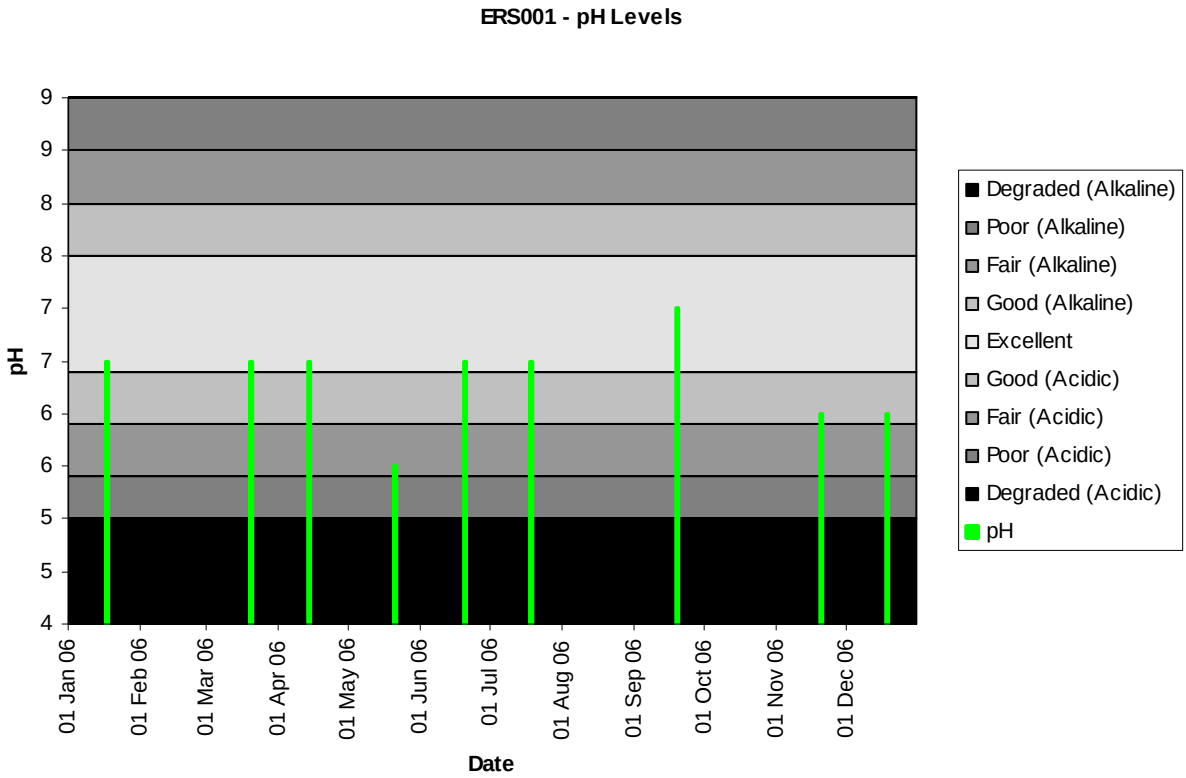
Erskine River (Site Code ERS001)

Erskine River @ Emily's Rest






ERS001 - Phosphate Concentrations
Phosphate (mg/L)
0.05
0.05
0.04
0.04
0.03
0.03
0.02
0.02
0.01
0.01
0.00
01 Jan 06
01 Feb 06
01 Mar 06
01 Apr 06
01 May 06
01 Jun 06
01 Jul 06
01 Aug 06
01 Sep 06
01 Oct 06
01 Nov 06
01 Dec 06
Date
Degraded
Poor
Fair
Good
Excellent
P (mg/L)


ERS001 - pH Levels
pH
9
9
8
8
7
7
6
6
5
5
4
01 Jan 06
01 Feb 06
01 Mar 06
01 Apr 06
01 May 06
01 Jun 06
01 Jul 06
01 Aug 06
01 Sep 06
01 Oct 06
01 Nov 06
01 Dec 06
Date
Degraded (Alkaline)
Poor (Alkaline)
Fair (Alkaline)
Good (Alkaline)
Excellent
Good (Acidic)
Fair (Acidic)
Poor (Acidic)
Degraded (Acidic)
pH

Discussion

Water Quality values and ratings (ANZECC, 1992) Results

Site	Oxygen Saturation		Electrical Conductivity		Reactive Phosphorus		pH		Turbidity	
	Median	Rating	Median	Rating	Median	Rating	Median	Rating	Median	Rating
ERS001	92	Exc	250	Exc	0.015	Good	6	Good	n/a	-

Each rating is given a value and the total sum of these value gives a water quality condition rating

Site	Oxygen Saturation	Electrical Conductivity	Reactive Phosphorus	pH	Turbidity	Total	Condition Rating
ERS001	4	4	3	3	-	14	Good

The condition rating for ERS001 Erskine River at Emily's Rest indicated it had a good condition rating. However this rating is underestimated because there is not sufficient information on the turbidity of the water samples. The actual condition rating may be better than estimated.

State Environment Protection Policy (Waters of Victoria) Results

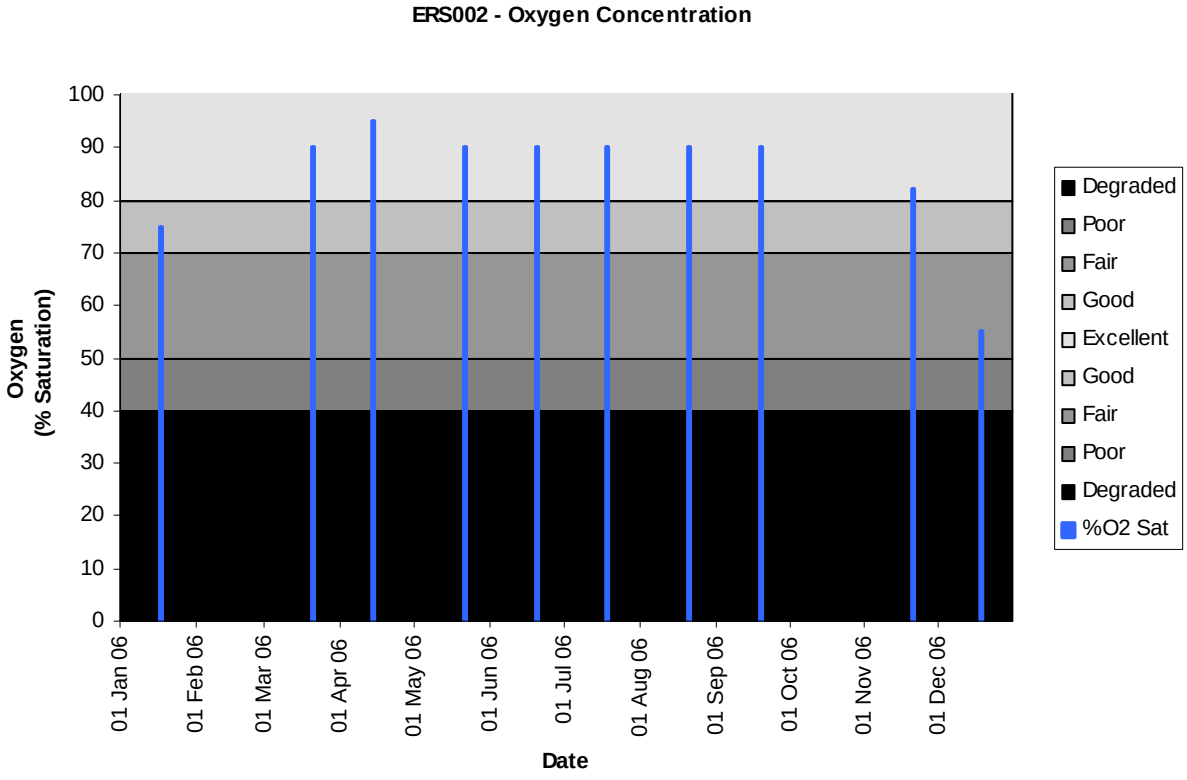
Segment	Indicator					
	Dissolved Oxygen (%sat)		Turbidity (NTU)	Electrical Conductivity (µS/cm)	pH units	
	25^{th} percentile	maximum	75^{th} percentile	75^{th} percentile	25^{th} percentile	75^{th} percentile
SEPP water quality parameters for rivers and streams in cleared hills and coastal plains						
Forested areas B – Otway Ranges	90	110	5	500	6.4	7.7
Waterwatch Data Generated in 2006 for Erskine River at Emily's Rest						
ERS001*	84	105	n/a	300	6	6.5

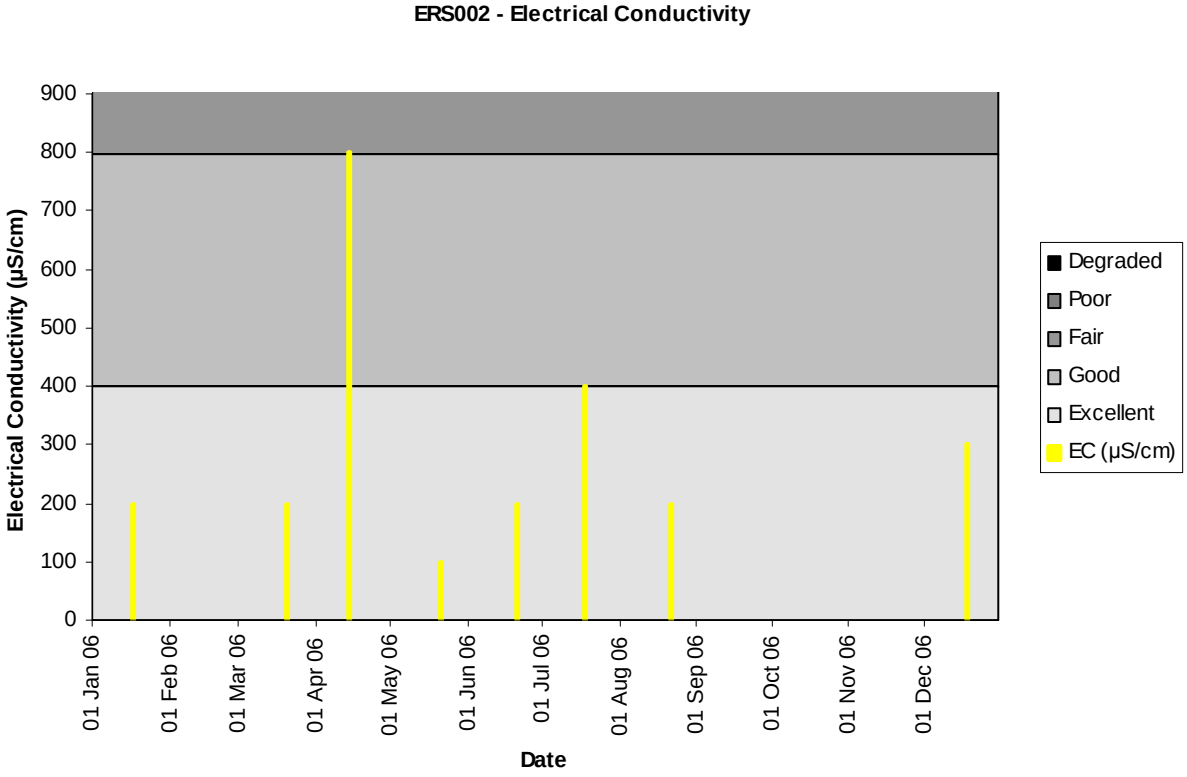
* Less than 11 data points were used to calculate these statistics

Data from Erskine River at Emily's Rest satisfies SEPP(WoV) objectives for water use in electrical conductivity only. SEPP objectives have not been achieved for dissolved oxygen and pH, and could not be established for turbidity. However, the analysis was based on less than 11 data points and should be considered as an indication of condition only.

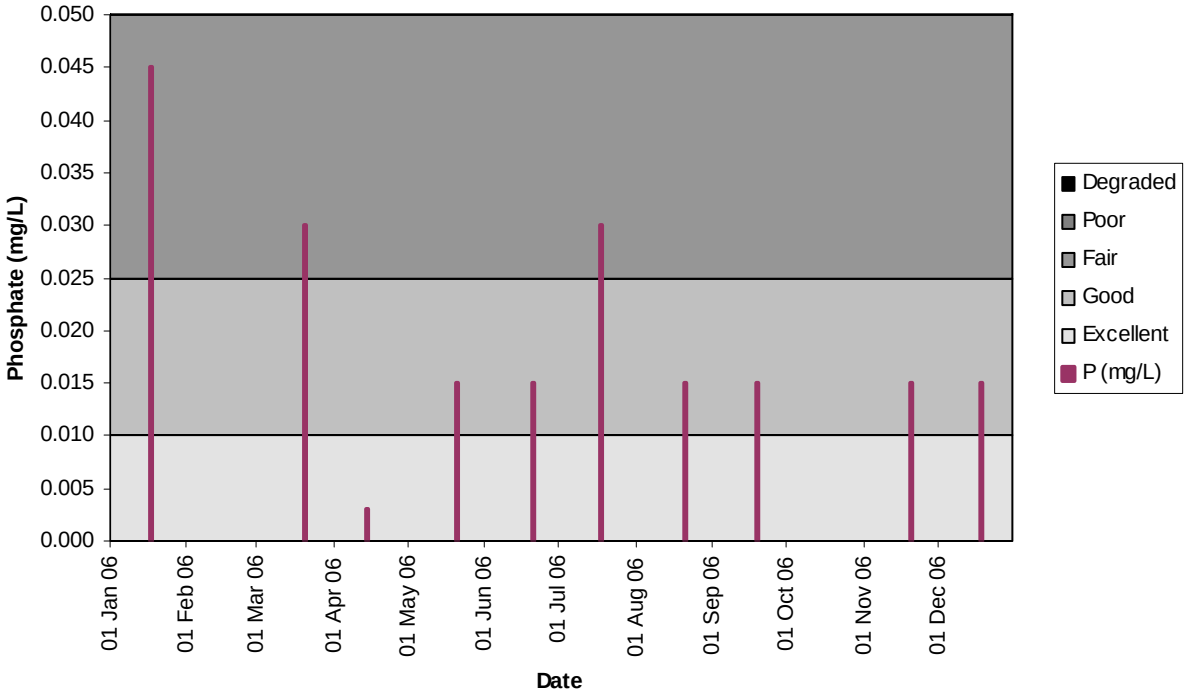
Erskine River (Site Code ERS002)

Erskine River @ Camel's Log

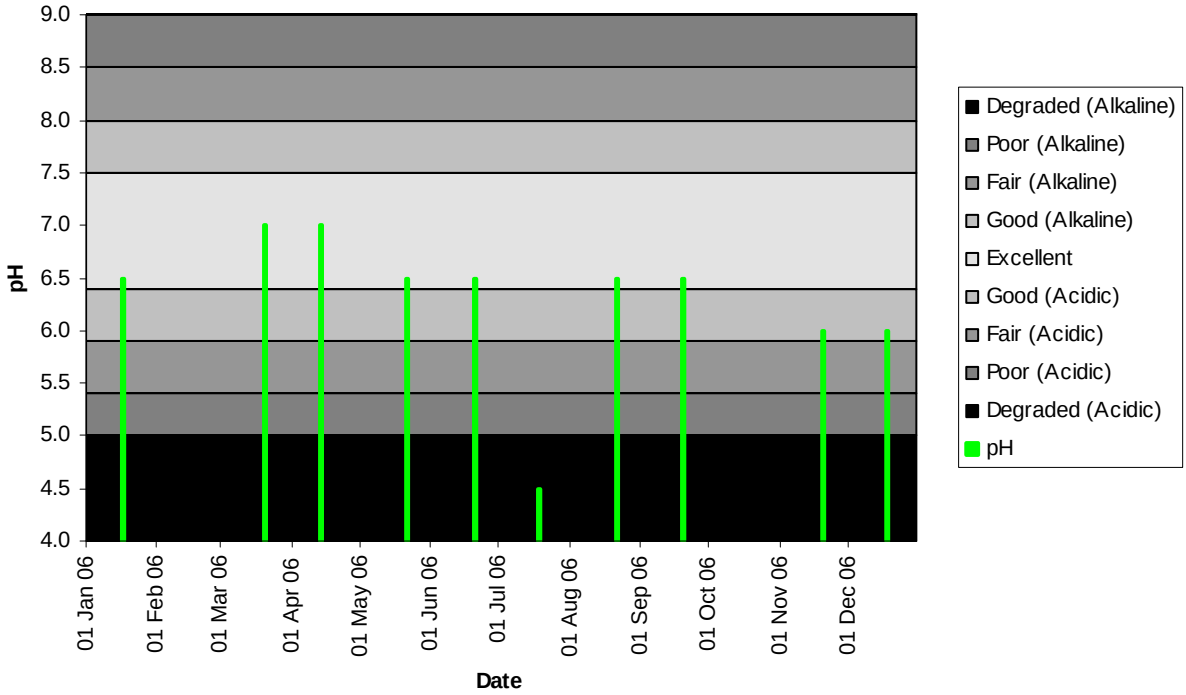




ERS002 - Phosphate Concentrations



ERS002 - pH Levels



Discussion

Water Quality values and ratings (ANZECC, 1992) Results

Site	Oxygen Saturation		Electrical Conductivity		Reactive Phosphorus		pH		Turbidity	
	Median	Rating	Median	Rating	Median	Rating	Median	Rating	Median	Rating
ERS002	90	Exc	200	Exc	0.015	Good	6.5	Exc	n/a	-

Each rating is given a value and the total sum of these value gives a water quality condition rating

Site	Oxygen Saturation	Electrical Conductivity	Reactive Phosphorus	pH	Turbidity	Total	Condition Rating
ERS002	4	4	3	4	-	15	Good

The condition rating for ERS002 Erskine River at Camel's Log indicated it had a good condition rating. However this rating is underestimated because there is not sufficient information on the turbidity of the water samples. The actual condition rating may be better than estimated.

State Environment Protection Policy (Waters of Victoria) Results

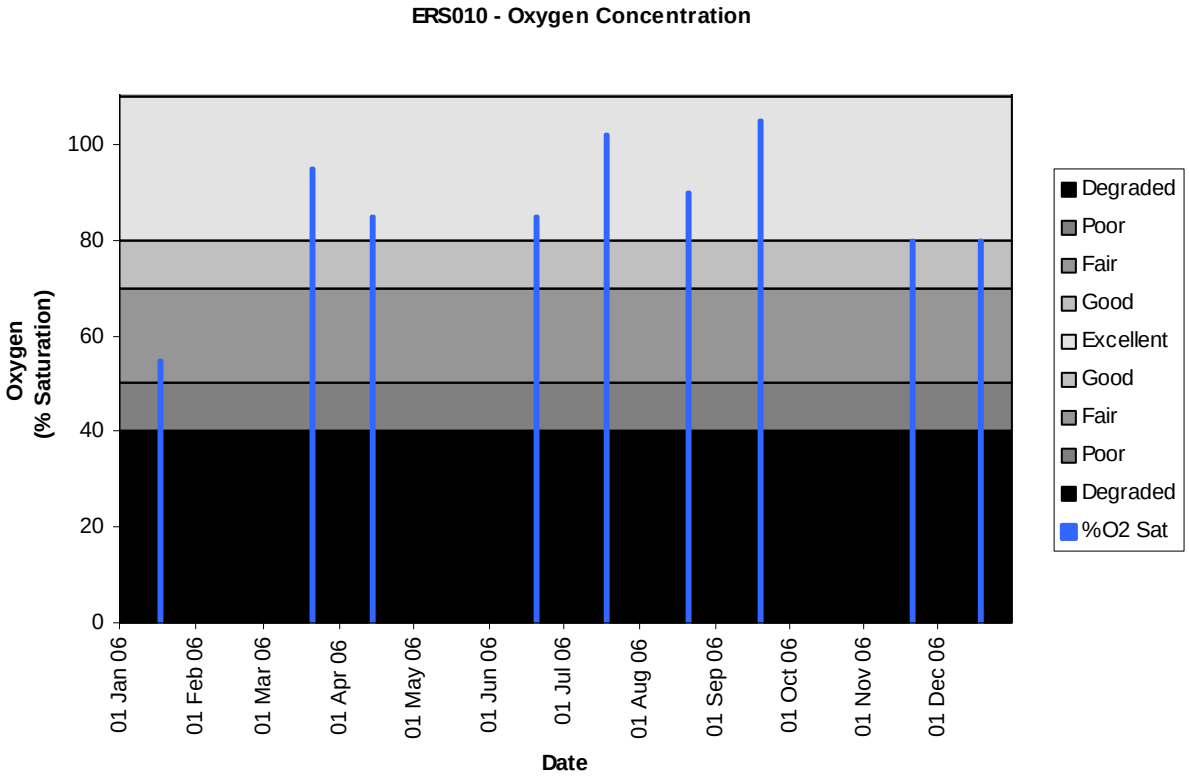
Segment	Indicator					
	Dissolved Oxygen (%sat)		Turbidity (NTU)	Electrical Conductivity (µS/cm)	pH units	
	25^{th} percentile	maximum	75^{th} percentile	75^{th} percentile	25^{th} percentile	75^{th} percentile
SEPP water quality parameters for rivers and streams in cleared hills and coastal plains						
Forested areas B – Otway Ranges	90	110	5	500	6.4	7.7
Waterwatch Data Generated in 2006 for Erskine River at Camel's Log						
ERS002*	84	95	n/a	325	6.1	6.5

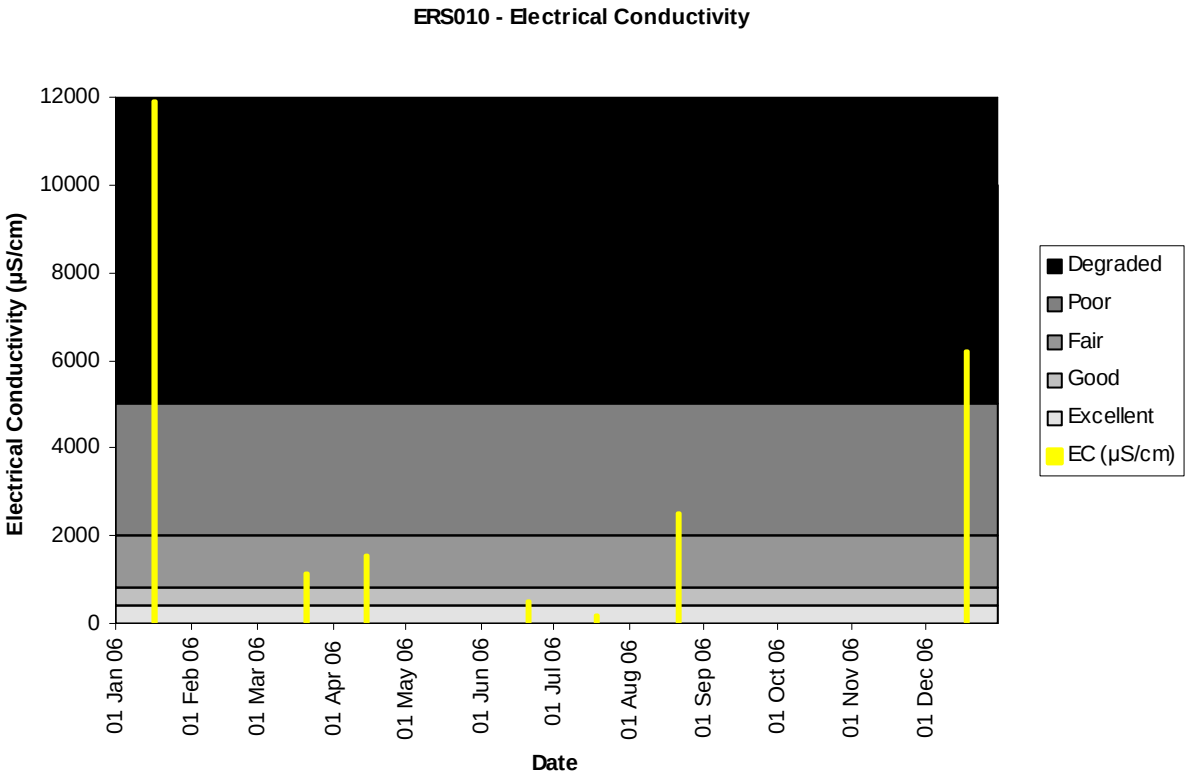
* Less than 11 data points were used to calculate these statistics

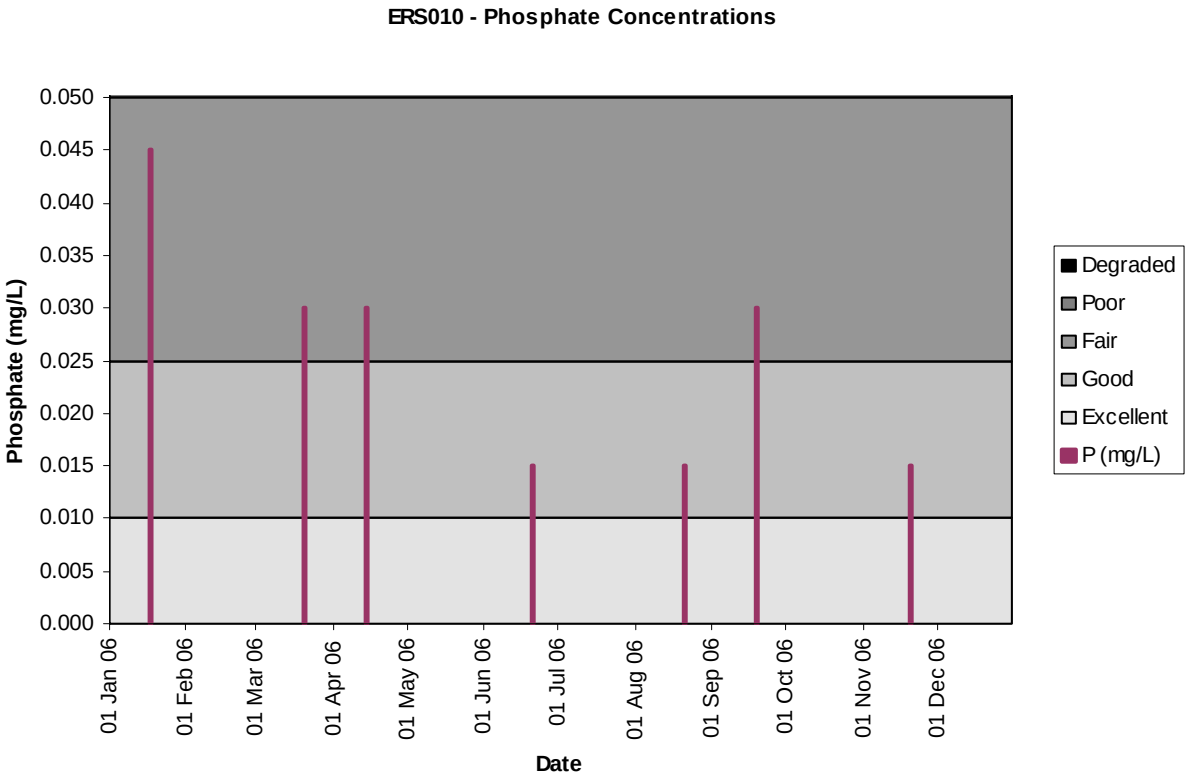
Data from Erskine River at Camel's log satisfies SEPP(WoV) objectives for water use in electrical conductivity only. SEPP objectives have not been achieved for dissolved oxygen and pH, and could not be established for turbidity. However, the analysis was based on less than 11 data points and should be considered as an indication of condition only.

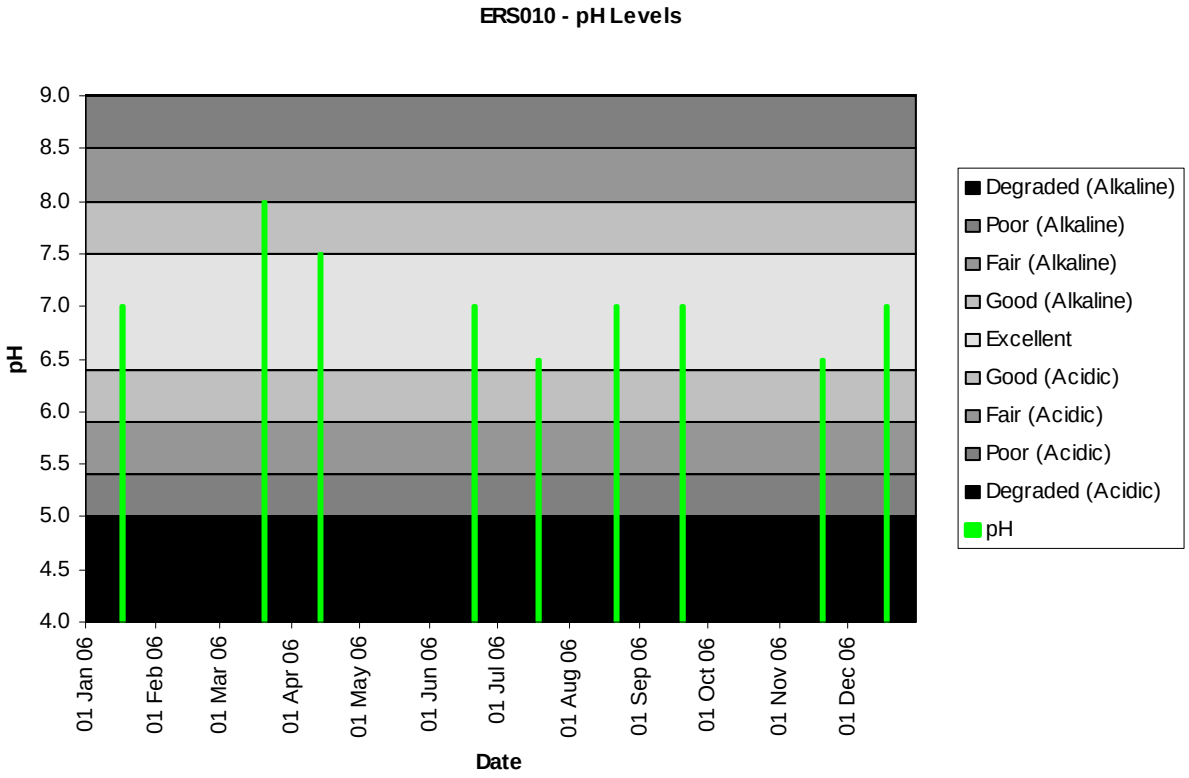
Erskine River (Site Code ERS010)

Erskine River @ Caravan Park






ERS010 - Phosphate Concentrations
Phosphate (mg/L)
0.050
0.045
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
01 Jan 06
01 Feb 06
01 Mar 06
01 Apr 06
01 May 06
01 Jun 06
01 Jul 06
01 Aug 06
01 Sep 06
01 Oct 06
01 Nov 06
01 Dec 06
Date
Degraded
Poor
Fair
Good
Excellent
P (mg/L)


ERS010 - pH Levels
pH
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
01 Jan 06
01 Feb 06
01 Mar 06
01 Apr 06
01 May 06
01 Jun 06
01 Jul 06
01 Aug 06
01 Sep 06
01 Oct 06
01 Nov 06
01 Dec 06
Date
Degraded (Alkaline)
Poor (Alkaline)
Fair (Alkaline)
Good (Alkaline)
Excellent
Good (Acidic)
Fair (Acidic)
Poor (Acidic)
Degraded (Acidic)
pH

Discussion

Water Quality values and ratings (ANZECC, 1992) Results

Site	Oxygen Saturation		Electrical Conductivity		Reactive Phosphorus		pH		Turbidity	
	Median	Rating	Median	Rating	Median	Rating	Median	Rating	Median	Rating
ERS010	85	Exc	1540	Fair	0.015	Good	7	Exc	n/a	-

Each rating is given a value and the total sum of these value gives a water quality condition rating

Site	Oxygen Saturation	Electrical Conductivity	Reactive Phosphorus	pH	Turbidity	Total	Condition Rating
ERS010	4	2	3	4	-	13	Fair

The condition rating for ERS010 Erskine River at the Caravan Park indicated it had a fair condition rating. However this rating is underestimated because there is not sufficient information on the turbidity of the water samples. The actual condition rating may be better than estimated. This site is estuarine and influenced by the tides.

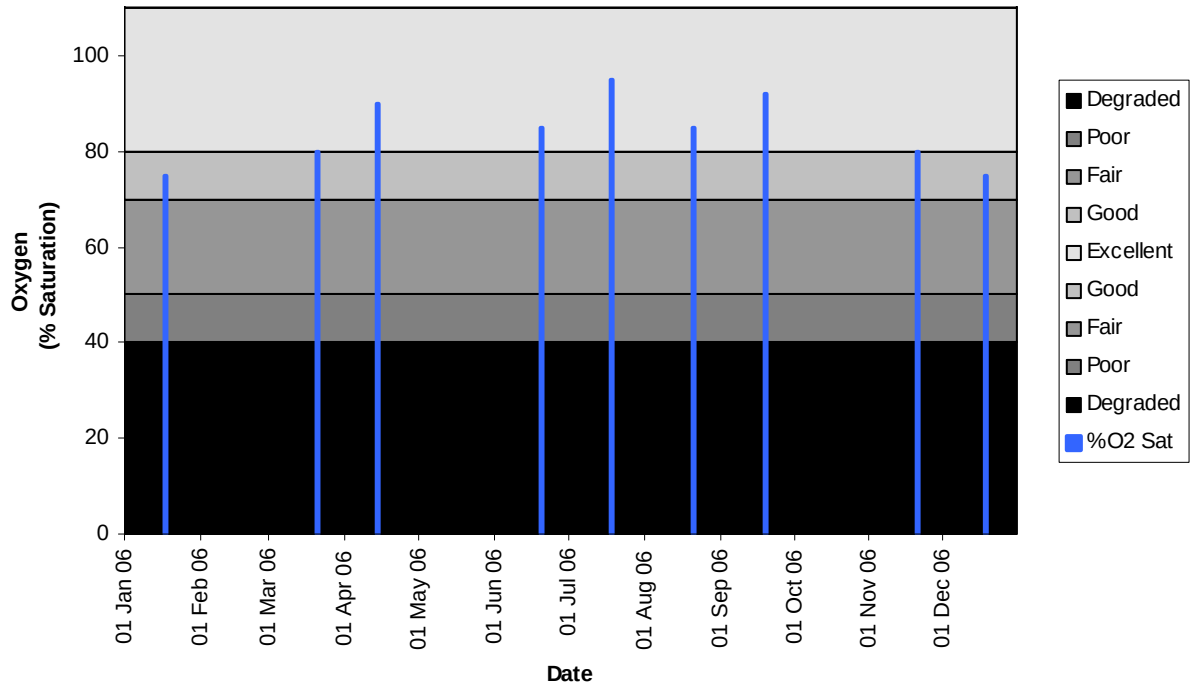
State Environment Protection Policy (Waters of Victoria) Results

SEPP guidelines have not been developed for estuaries.

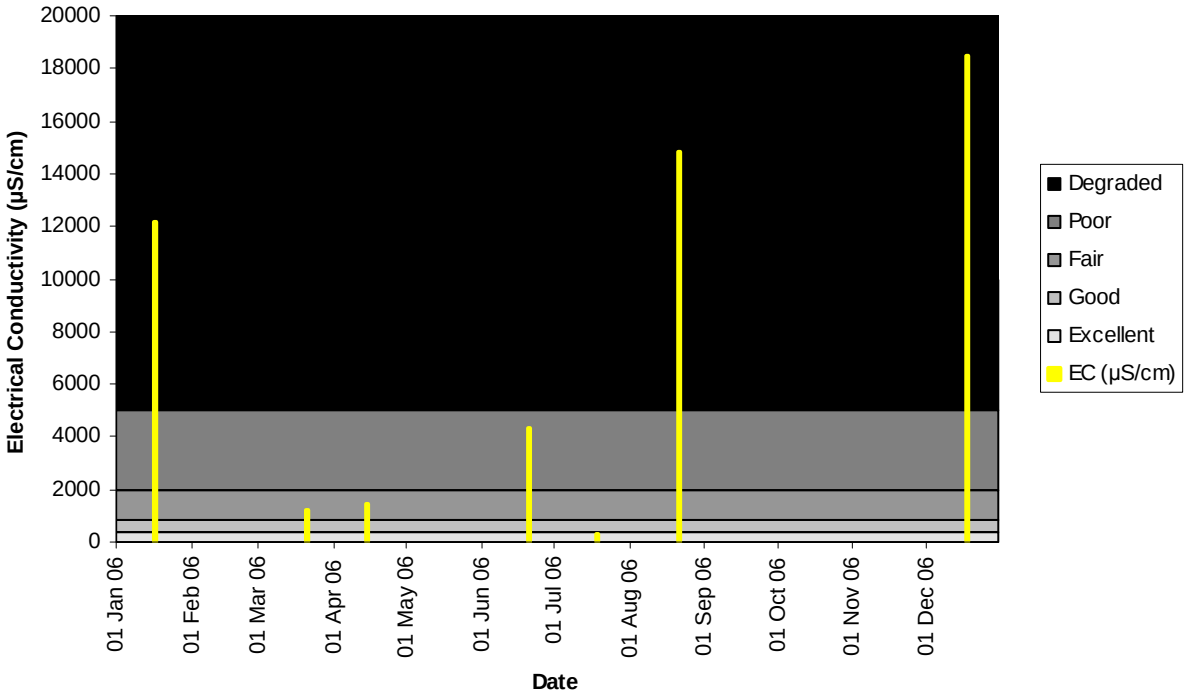
Erskine River (Site Code ERS015)

Erskine River @ Swing Bridge

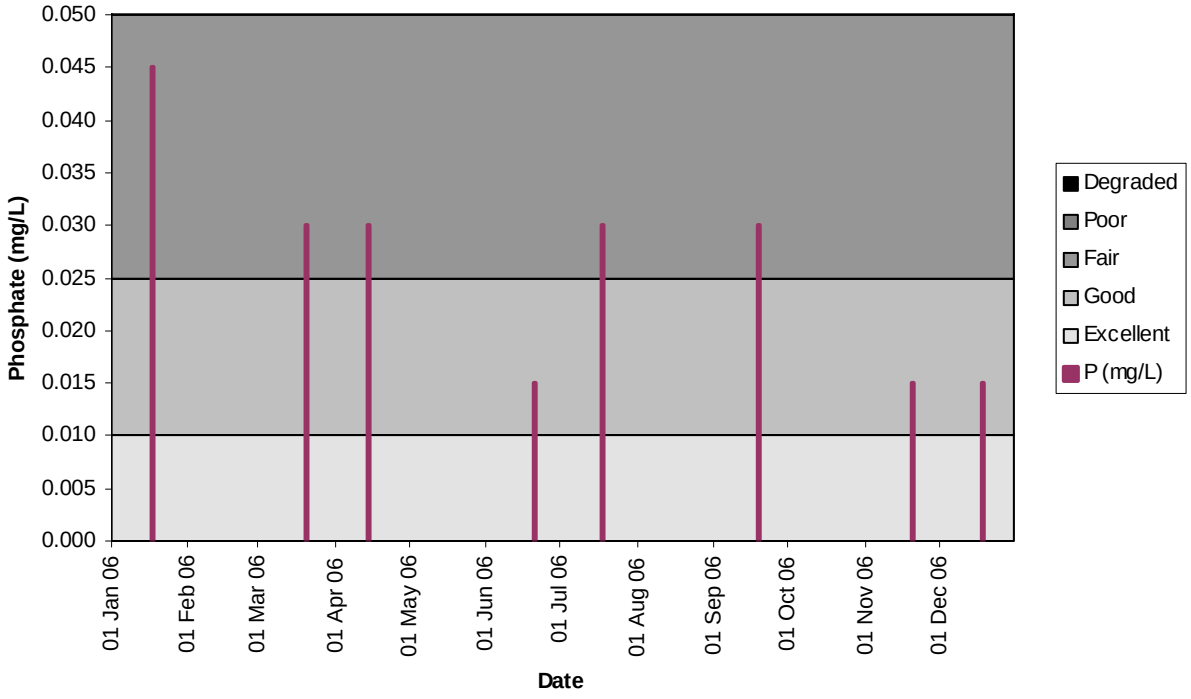
ERS015 - Oxygen Concentration



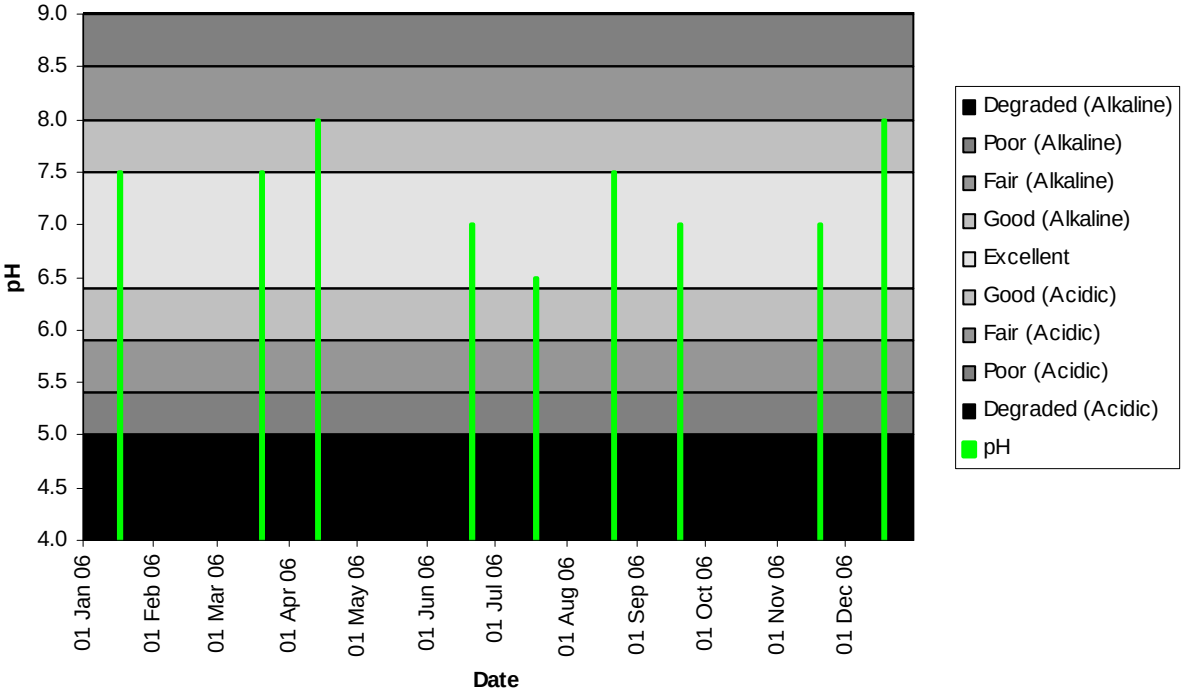
ERS015 - Electrical Conductivity



ERS015 - Phosphate Concentrations



ERS015 - pH Levels



Discussion

Water Quality values and ratings (ANZECC, 1992) Results

Site	Oxygen Saturation		Electrical Conductivity		Reactive Phosphorus		pH		Turbidity	
	Median	Rating	Median	Rating	Median	Rating	Median	Rating	Median	Rating
ERS015	85	Exc	4300	Poor	0.030	Fair	8	Good	n/a	-

Each rating is given a value and the total sum of these value gives a water quality condition rating

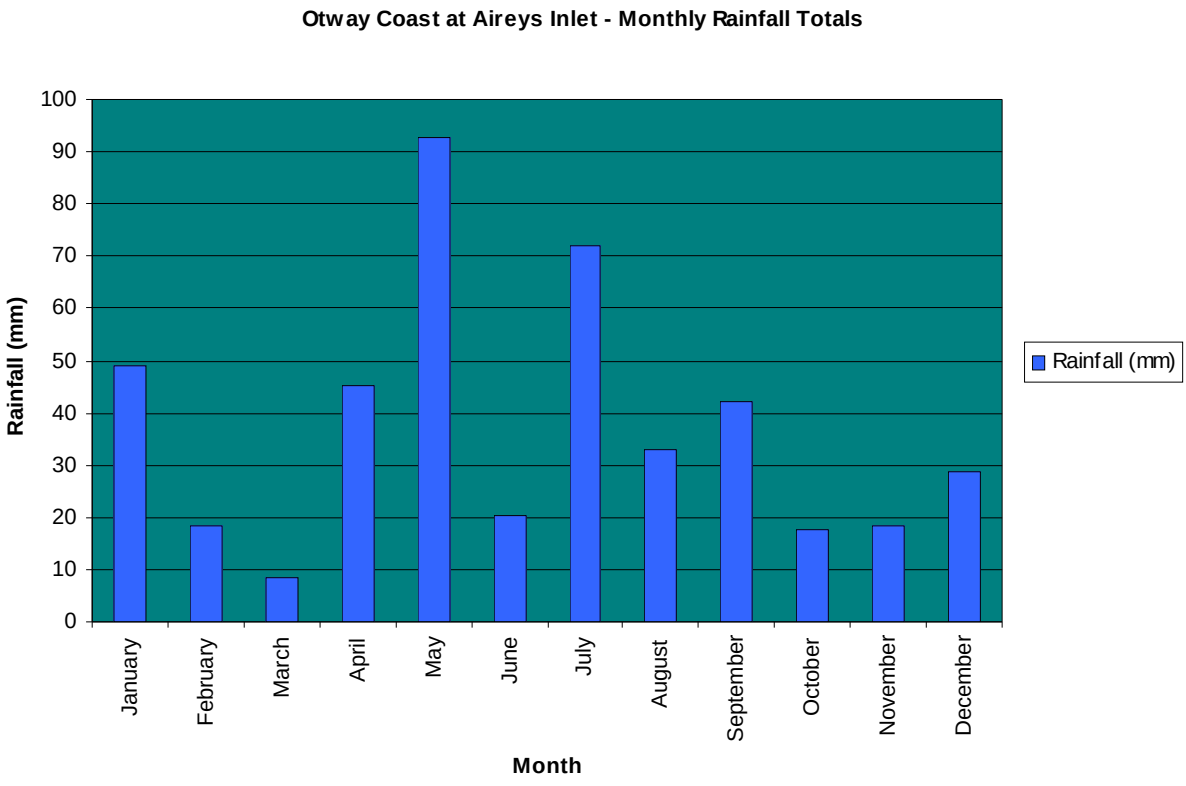
Site	Oxygen Saturation	Electrical Conductivity	Reactive Phosphorus	pH	Turbidity	Total	Condition Rating
ERS015	4	1	2	3	-	10	Fair

The condition rating for ERS015 Erskine River at the Swing Bridge indicated it had a fair condition rating. However this rating is underestimated because there is not sufficient information on the turbidity of the water samples. The actual condition rating may be better than estimated. This site is estuarine and influenced by the tides.

State Environment Protection Policy (Waters of Victoria) Results

SEPP guidelines have not been developed for estuaries.

Rainfall Data



Source: Geelong Weather Service (2006) http://users.pipeline.com.au/gws

Conclusion

According to the ANZECC guidelines, the Erskine River at Emily's Rest and Camels log had good condition ratings. At the Caravan Park and Swing Bridge, Erskine River had fair water quality condition ratings. As noted in the discussion, these ratings may be underestimated because of the lack of turbidity data.

SEPP (WoV) objectives were partially met at the two upstream sites on the Erskine River. Objectives were met for electrical conductivity, but not for dissolved oxygen or pH. This analysis was based on less than 11 data points and should be used as an indication only. The other sites could not be analysed for SEPP objectives because the water was estuarine.

This record will be useful when comparing the dataset over time to establish if positive or negative changes to the water quality are occurring in the catchment.

The low rainfall averages for the year will have contributed to poorer water quality.

All condition ratings mentioned in this report are based of the Water Quality Guidelines for the Corangamite Region, which are for 'flowing freshwater' waterways. Please note that some of these sites are influenced by tides. Estuarine Water Quality Guidelines for the Corangamite Region are currently being developed.

It must also be kept in mind when reading this report that the data collected represents the conditions of the monitored site at a point in time (snapshot monitoring). Long term complete data sets accompanied by habitat surveys and ideally biological survey (macro-invertebrate) are required to identify trends and interpret results with more accuracy.

Recommendations

- Improvements in the water quality will only be seen in conjunction with a programme to improve the surrounding environment. Maintenance of present vegetation and further revegetation, especially in the riparian zone may improve the quality of water entering the waterways.

- Habitat Surveys of all sites should be carried out on an annual basis to assess decline or improvement in banks, in-stream cover, verge vegetation and any other factors that influence the water quality.

- Identify possible sources of nutrients at sites where there are consistently poor and degraded condition ratings indicated and develop action plans to address the identified sources.

- Continue monitoring of stormwater influences on water quality in the catchment. Identify sites where only rain event monitoring may be necessary.

- Introduce macro-invertebrate surveys during autumn and spring at selected sites.

Data Confidence

As part of the implementation of the Corangamite Waterwatch Data Confidence Plan monitors are encouraged to participate in a number of quality assurance and quality control (QA/QC) program and training activities on an annual basis. This along with the water quality monitoring equipment used and its maintenance determines the standard of data collected. The table below indicates the standard of data collected by monitors for this report.

Monitoring Site / monitor	QA/QC	Training (formal/informal)	Equipment maintenance	Data standard
Erskine River / Juliet English	March July	March	January October	Tertiary

Appendix A – Recorded Data

siteno	Test Date	% O2 Sat (%)	AirT (°C)	DO (mg/L)	EC (µS/cm)	pH (pH Units)	ReactP (mg/L P)	Temp (° C)
ERS001	17/01/2006	82	19		300	6.5	0.045	17
ERS001	20/03/2006	95	16		300	6.5	0.045	14
ERS001	14/04/2006	92	14	9.5	200	6.5	0.03	12.5
ERS001	21/05/2006	80	10	8.8	200	5.5	0.015	10
ERS001	20/06/2006	91	7	10.9	200	6.5	0.015	7
ERS001	18/07/2006	105	12	11.6	200	6.5	0.03	10
ERS001	21/08/2006	100	12	11.1	300		0.015	10
ERS001	19/09/2006	100	15	11.2		7	0.015	10
ERS001	20/11/2006	92	15			6	0.015	14
ERS001	18/12/2006	65			300	6	0.015	
ERS002	17/01/2006	75	19		200	6.5	0.045	17
ERS002	20/03/2006	90	14		200	7	0.03	14
ERS002	14/04/2006	95	12.5	9.5	800	7	0.003	14.5
ERS002	21/05/2006	90	8	9.9	100	6.5	0.015	10
ERS002	20/06/2006	90	8	10.8	200	6.5	0.015	7
ERS002	18/07/2006	90	11	10	400	4.5	0.03	10
ERS002	21/08/2006	90	10	10.2	200	6.5	0.015	9
ERS002	19/09/2006	90	14	9.8		6.5	0.015	11
ERS002	20/11/2006	82	15			6	0.015	14
ERS002	18/12/2006	55	17		300	6	0.015	15
ERS010	17/01/2006	55	18		11900	7	0.045	17
ERS010	20/03/2006	95	18		1150	8	0.03	20
ERS010	14/04/2006	85	17	8.2	1540	7.5	0.03	17
ERS010	20/06/2006	85	10	10	500	7	0.015	8
ERS010	18/07/2006	102	11	11.3	200	6.5		10
ERS010	21/08/2006	90	12	9.9	2500	7	0.015	10
ERS010	19/09/2006	105	15	11.2		7	0.03	12
ERS010	20/11/2006	80	17			6.5	0.015	16
ERS010	18/12/2006	80			6200	7		
ERS015	17/01/2006	75	19		12200	7.5	0.045	21
ERS015	20/03/2006	80	14		1230	7.5	0.03	18
ERS015	14/04/2006	90	17	8.5	1420	8	0.03	17
ERS015	20/06/2006	85	11	9.7	4300	7	0.015	9
ERS015	18/07/2006	95	11	10.5	300	6.5	0.03	10
ERS015	21/08/2006	85	12	9	14800	7.5	0.015	12
ERS015	19/09/2006	92	17	10		7	0.03	11
ERS015	20/11/2006	80	18			7	0.015	18
ERS015	18/12/2006	75			18500	8	0.015	